

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2005/001815

## A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.<sup>7</sup> H05K3/46, H01L23/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl.<sup>7</sup> H05K3/46, H01L23/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1923-1996	Jitsuyo Shinan Toroku Koho	1996-2005
Kokai Jitsuyo Shinan Koho	1971-2005	Toroku Jitsuyo Shinan Koho	1994-2005

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2001-217550 A (Ibiden Co., Ltd.), 10 August, 2001 (10.08.01), Full text; Fig. 9 & US 6534723 B1 & EP 1156525 A1	1-15
A	JP 2003-086948 A (Denso Corp.), 20 March, 2003 (20.03.03), Full text; Figs. 4 to 6 & US 2002/0076903 A1	1-15

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

17 May, 2005 (17.05.05)

Date of mailing of the international search report

31 May, 2005 (31.05.05)

Name and mailing address of the ISA/

Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

A. 発明の属する分野の分類 (国際特許分類 (IPC)) Int.Cl. <sup>7</sup> H05K 3/46, H01L23/12										
B. 調査を行った分野 調査を行った最小限資料 (国際特許分類 (IPC)) Int.Cl. <sup>7</sup> H05K 3/46, H01L23/12										
最小限資料以外の資料で調査を行った分野に含まれるもの <table border="0"> <tr> <td>日本国実用新案公報</td> <td>1922-1996年</td> </tr> <tr> <td>日本国公開実用新案公報</td> <td>1971-2005年</td> </tr> <tr> <td>日本国実用新案登録公報</td> <td>1998-2005年</td> </tr> <tr> <td>日本国登録実用新案公報</td> <td>1994-2005年</td> </tr> </table>			日本国実用新案公報	1922-1996年	日本国公開実用新案公報	1971-2005年	日本国実用新案登録公報	1998-2005年	日本国登録実用新案公報	1994-2005年
日本国実用新案公報	1922-1996年									
日本国公開実用新案公報	1971-2005年									
日本国実用新案登録公報	1998-2005年									
日本国登録実用新案公報	1994-2005年									
国際調査で利用した電子データベース (データベースの名称、調査に利用した用語)										
C. 関連すると認められる文献										
引用文献の カテゴリー*	引用文献名 及び一部の箇所が関連するときは、その関連する箇所の表示	関連する 請求の範囲の番号								
A	JP 2001-217550 A (イビデン株式会社) 2001. 08. 10, 全文, 図9 & US 6534723 B1, EP 1156525 A1	1-15								
A	JP 2003-086948 A (株式会社デンソー) 2003. 03. 20, 全文, 図4~図6 & US 2002/0076903 A1	1-15								
<input type="checkbox"/> C欄の続きにも文献が列挙されている。 <input type="checkbox"/> パテントファミリーに関する別紙を参照。										
* 引用文献のカテゴリー 「A」特に関連のある文献ではなく、一般的技術水準を示すもの 「E」国際出願日前の出願または特許であるが、国際出願日後に公表されたもの 「L」優先権主張に疑義を提起する文献又は他の文献の発行日若しくは他の特別な理由を確立するために引用する文献 (理由を付す) 「O」口頭による開示、使用、展示等に言及する文献 「P」国際出願日前で、かつ優先権の主張の基礎となる出願日の後に公表された文献 「T」国際出願日又は優先日後に公表された文献であって出願と矛盾するものではなく、発明の原理又は理論の理解のために引用するもの 「X」特に関連のある文献であって、当該文献のみで発明の新規性又は進歩性がないと考えられるもの 「Y」特に関連のある文献であって、当該文献と他の1以上の文献との、当業者にとって自明である組合せによって進歩性がないと考えられるもの 「&」同一パテントファミリー文献										
国際調査を完了した日 17. 05. 2005	国際調査報告の発送日 31. 5. 2005									
国際調査機関の名称及びあて先 日本国特許庁 (ISA/JP) 郵便番号100-8915 東京都千代田区霞が関三丁目4番3号	特許庁審査官 (権限のある職員) 長屋 陽二郎 電話番号 03-3581-1101 内線 3391	35 8811								

# PATENT COOPERATION TREATY

From the Japan Patent Office (INTERNATIONAL SEARCHING AUTHORITY)

## PCT

To: Agent for Applicant  
Mr. Hajime OHARA

Address:

Shinkou Building 5th floor, 14-14, Shinyokohama 2-  
chome, Kouhoku-ku, Yokohama City, Kanagawa 222-  
0033, Japan

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(Implementing Regulation 40 bis)  
(PCT Rule 43bis.1)

Date of mailing  
(day/month/year) 31. 5. 2005

Applicant's or agent's file reference

M5160510

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

PCT/IP2005/001815

International filing date (day/month/year)

08. 02. 2005

Priority date (day/month/year)

06. 04. 2004

International Patent Classification (IPC) Int. Cl. H05K 3/46, H01L23/12

Applicant

Murata Manufacturing Co., Ltd.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220

3. For further details, see notes to Form PCT/ISA/220

Date of completion of this opinion

17. 05. 2005

Name and mailing address of the ISA/IP

**Japan Patent Office**

3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

Yojiro NAGAYA

Telephone No. 03-3581-1101 Ext. 3391

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8811

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/JP2005/001815

Box No. 1

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purpose of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2005/001815

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
<b>1. Statement</b>			
Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO
<b>2. Citations and explanations:</b>			
Document 1: JP 2001-217550 A (IBIDEN CO., LTD.) 2001.08.10, Fig. 9			
Document 2: JP 2003-086948 A (DENSO CORPORATION) 2003.03.20, Fig. 4 to Fig. 6			
<p>The invention according to Claims 1 to 15 has an inventive step of the invention over Document 1 and Document 2 cited in the international search report. A continuous via conductor disposed extending from one of via conductors in a direction farther from the other via conductor is not disclosed in Document 1 and Document 2. In addition, this point is not obvious to even a person skilled in the art.</p>			